

Surveillance Initiative Evaluates Trends in Mortality Associated with or Related to Pregnancy

Concerns about a possible increase in maternal mortality in Washington State prompted the Department of Health, Maternal and Child Health Office to reevaluate surveillance of pregnancy-associated and pregnancy-related mortality.

Pregnancy-associated deaths include all women who died while pregnant or within a year of delivery or termination of pregnancy from any cause. Pregnancy associated deaths are not routinely reported in Washington. However, concerns about domestic violence and depression during pregnancy and the postpartum period have increased interest in the homicide and suicide rates of this group of women.

Pregnancy-related deaths are a subset of the pregnancy-associated category and include all deaths during pregnancy or within a year of delivery or termination of pregnancy from any cause related to or aggravated by pregnancy or its management. Pregnancy-related mortality up to 42 days postpartum is routinely reported in vital statistics records. However, mortality is undercounted due to lack of awareness of pregnancy by the person certifying the death and classification rules that stipulate the principal and contributing causes of death.

Pregnancy-related mortality is particularly important to monitor as it is largely preventable and represents the severe end of pregnancy-related morbidity. For every death that occurs, several women experience pregnancy-related complications.

To evaluate trends in mortality associated with or related to pregnancy, the project analyzed all deaths of women residing in Washington from 1990 through 1996 that linked to births, fetal deaths, and obstetric hospitalizations within 364 days prior to death. Deaths in 1997–1998 were also

linked to births and fetal deaths, but hospitalization files are not yet complete. Three perinatologists, an obstetrician, and an epidemiologist reviewed the information available from each death certificate, birth/fetal death certificate, and hospitalization record.

The team considered all linked deaths to be pregnancy-associated and then further classified them for relation to pregnancy. Deaths considered not pregnancy-related included all deaths due to cancer or injury, those with a vague or indefinite cause, and deaths due to epilepsy or seizures, deep vein thrombosis, infection, or intracerebral hemorrhage if they occurred 42 days or more after delivery. Deaths considered pregnancy-related included those due to deep vein thrombosis, pneumonia, or aneurysm that occurred during pregnancy or less than 42 days after delivery. Cardiovascular

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Domestic Violence Against Women a Public Health Issue

Domestic violence has important effects on public health. Approximately 10–20% of visits to emergency departments by women with partners involve intimate partner violence, and women who are victims of domestic violence have more hospitalizations for a variety of causes than do non-abused women.^{1,2} Questions about experiences of intimate partner violence added to the 1998 and 1999 Washington Behavioral Risk Factor Survey (BRFS)³ assess the prevalence of domestic violence in Washington. Results indicated that 1–2% ($\pm 1\%$) of women reported experiencing intimate partner violence in the past year and 24% ($\pm 2\%$) in their lifetimes. These findings are similar to national figures of 1% and 22%, respectively,

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Domestic Violence (from page 1)

from the 1995–1996 National Violence Against Women Survey.⁴ In Washington and the nation, rates of violence are higher among women who are young, at lower income levels, or who are separated or divorced.

The 1998 survey also included questions about injury from domestic violence. Most women who reported violence also reported injury. One of five Washington women (22% \pm 2%) reported they were injured by an intimate partner sometime during their lifetimes and 7% (\pm 1%) reported seeing a doctor for this reason. The survey revealed that a lower proportion of men experienced violence, and especially injury (Table 1).

Data from the 1996–1999 Washington Pregnancy Risk Assessment Monitoring System (PRAMS)⁵ survey suggests that 3–4% of pregnant women experienced physical violence by a husband or partner during the year prior to and during pregnancy. To address the needs of these women, the Perinatal Partnership Against Domestic Violence (PPADV) project offers training to providers of health services to pregnant women, including physicians, nurses, social workers, midwives, and nutritionists. It presents information and tools to increase the safety of women experiencing domestic violence during pregnancy.

The Department of Health staffs this statewide, multidisciplinary, multi-agency partnership. A fact sheet about domestic

violence during pregnancy is available to health care providers serving pregnant or postpartum women.

For More Information

For general information on domestic violence advocate programs in Washington State, visit the web site www.wavawnet.org.

For more information on the training or to obtain a copy of the fact sheet, contact: Judith Leconte, 253-395-6739 or by email, judith.leconte@doh.wa.gov. For more information about epidemiologic issues in domestic violence, contact Lillian Bensley, 360-236-4248 or lillian.bensley@doh.wa.gov.

Footnotes:

(1) Bensley L, Macdonald S, Van Eenwyk J, et al. Prevalence of intimate partner violence and injuries, Washington 1998. *JAMA* 2000; 284:559–560.

(2) Kernic MA, Wolf ME, Holt VL. Rates and relative risk of hospital admission among women in violent intimate partner relationships. *Am J Pub Health* 2000; 90:1416–1420.

(3) The BRFS is an ongoing, population-based telephone survey supported by the Washington State Department of Health in collaboration with the Centers for Disease Control and Prevention (CDC). This survey collects information about health-related behaviors from English-speaking, non-institutionalized adults, age 18 and over, living in households with telephones.

(4) Tjaden P, Thoennes N. Extent, Nature, and Consequences of Intimate Partner Violence: Findings from the National Violence Against Women Survey. Washington, DC: US Department of Justice, NCH172837, 2000.

(5) PRAMS is an ongoing population based surveillance system, sponsored by the CDC, that surveys a sample of new mothers representative of all registered births to Washington State residents.

TABLE 1: Lifetime experiences of injury by an intimate partner (BRFS, 1998)

Injury	Women			Men		
	No.	Prevalence (%)	95% CI	No.	Prevalence (%)	95% CI
Sprain, bruise, or small cut	369	18.8	(17.7-19.9)	93	6.2	(4.7-7.7)
Physical pain the next day	369	18.5	(16.4-20.6)	86	5.5	(4.2-6.8)
Pass out from being hit on head	66	4.2	(2.9-5.5)	14	1.1	(0.3-1.9)
Went to doctor	151	7.4	(6.0-8.8)	19	1.3	(0.7-1.9)
Needed to see doctor, but didn't	140	7.5	(6.0-9.0)	19	1.4	(0.6-2.2)
Broken bone	59	3.2	(2.2-4.2)	8	0.6	(0.2-1.0)
Any injury	422	21.6	(19.4-23.8)	114	7.5	(5.9-9.1)

Monthly Surveillance Data by County

December 2001* – Washington State Department of Health

County	E. coli O157:H7	Salmonella	Shigella	Hepatitis A	Hepatitis B	Non-A, Non-B Hepatitis	Meningococcal Disease	Pertussis	Tuberculosis	Chlamydia	Gonorrhea	AIDS	Pesticides†	Lead\$#
Adams	0	0	0	0	0	0	0	0	0	6	0	0	0	3/92
Asotin	0	0	0	0	0	0	0	0	0	2	0	0	0	0/0
Benton	0	0	0	0	0	0	0	0	0	26	0	0	0	0/0
Chelan	0	0	0	1	0	0	0	0	0	19	0	0	0	0/6
Clallam	0	2	0	0	0	0	0	0	0	11	1	0	0	0/0
Clark	0	1	0	0	0	0	2	0	4	64	12	1	0	0/0
Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Cowlitz	0	1	1	0	3	1	0	1	1	13	0	1	1	0/30
Douglas	0	0	0	0	0	0	0	0	0	3	0	0	0	0/0
Ferry	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Franklin	0	0	0	0	0	0	0	0	0	19	0	0	0	0/#
Garfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Grant	2	0	0	1	0	0	0	0	1	8	0	0	0	1/31
Grays Harbor	1	1	0	0	0	0	0	0	1	16	1	1	0	0/0
Island	0	0	0	0	0	0	0	0	0	5	0	0	0	0/7
Jefferson	0	0	0	0	0	0	0	0	0	1	0	0	0	0/#
King	1	19	5	8	3	0	3	3	21	349	111	31	0	2/56
Kitsap	0	3	1	0	0	0	1	0	1	37	16	0	0	2/#
Kittitas	1	0	0	0	0	0	0	0	0	12	0	0	0	0/5
Klickitat	0	0	0	0	0	0	0	0	0	4	0	0	0	0/0
Lewis	0	2	0	0	0	1	0	0	0	1	0	0	0	0/0
Lincoln	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Mason	0	0	0	0	0	0	0	0	1	10	1	1	0	0/#
Okanogan	0	1	0	0	0	0	0	0	0	6	0	0	0	0/#
Pacific	0	0	0	0	0	0	0	1	0	2	0	0	0	0/0
Pend Oreille	0	0	0	0	0	0	0	0	0	1	0	0	0	0/#
Pierce	1	11	0	15	1	0	0	5	1	192	62	4	1	2/16
San Juan	0	0	0	0	0	0	0	0	0	1	0	0	0	0/0
Skagit	1	4	1	1	0	0	0	0	0	13	0	0	0	0/#
Skamania	0	0	0	0	0	0	0	0	0	1	0	0	0	0/0
Snohomish	3	3	1	2	1	0	1	0	6	93	8	2	0	0/10
Spokane	6	16	0	0	2	0	0	0	0	70	10	0	0	0/27
Stevens	0	0	0	0	0	0	0	0	0	2	0	0	0	0/#
Thurston	1	2	0	0	0	0	0	0	1	48	4	1	0	0/#
Wahkiakum	0	0	0	0	0	0	0	0	0	0	0	0	0	0/0
Walla Walla	0	1	0	0	0	0	0	0	0	8	0	2	0	0/14
Whatcom	3	6	1	0	1	0	0	1	0	16	1	0	0	0/9
Whitman	0	0	0	0	0	0	0	0	0	13	1	0	0	0/0
Yakima	3	8	8	2	1	0	0	1	0	88	2	0	2	0/10
Unknown														0/0

Current Month	16	81	18	30	12	2	7	12	38	1160	230	44	4	10/330
December 2000	16	105	67	30	25	13	15	67	23	1136	270	34	5	8/389
2001 to date	139	585	220	170	146	25	66	171	261	13631	2991	514	212	128/4199
2000 to date	237	659	501	298	132	44	71	458	258	13064	2418	476	312	135/4262

* Data are provisional based on reports received as of December 31, unless otherwise noted.

† Unconfirmed reports of illness associated with pesticide exposure.

\$# Number of elevated tests (data include unconfirmed reports) / total tests performed (not number of children tested); number of tests per county indicates county of health care provider, not county of residence for children tested; # means fewer than 5 tests performed, number omitted for confidentiality reasons.



WWW Access Tips

Weekly updates about influenza activity are available at: <http://www.doh.wa.gov/EHSPHL/Epidemiology/CD/HTML/FluUpdate.htm>. A fact sheet about influenza, including a list of high-risk persons, is available at: www.doh.wa.gov/Topics/topics.htm#Disease

epiTRENDS online

http://www.doh.wa.gov/Publicat/EpiTrends/01-02_EpiTrends/2001_trend.htm

Maternal Mortality *(from page 1)*

deaths within three months of delivery and deaths due to epilepsy/seizures or infection that occurred within 42 days of delivery were considered case by case.

During the study period 8,016 women died; 266 deaths (37.6 per 100,000 live births) were pregnancy-associated, occurring within 364 days of delivery. Fifty percent of these deaths were due to injuries, most sustained in motor vehicle crashes (42% of all injury deaths). While most injury deaths were unintentional (53%), homicides accounted for 26% and suicides for 11% of deaths. Women who had not been pregnant within a year of death were less likely to die from suicide compared to women who had been pregnant. The difference between groups was statistically significant. Homicide and motor vehicle crash death rates were not statistically significantly different between the two groups.

Of the 266 pregnancy-associated deaths, 53 were related to pregnancy (7.5 per 100,000 live births). While the numbers are small and subject to random variability, the major causes of the pregnancy-related deaths appeared to be infection (n=13), cardiac conditions (n=9), obstetric hemorrhage (n=8), and amniotic fluid embolism (n=6). Pregnancy-related mortality ratios appeared to be higher for African American and Asian American women, those 35 years of age and older, and women who did not receive prenatal care.

For the same years, the Washington State Center for Health Statistics, following guidelines from the National Center for

Health Statistics, reported 27 pregnancy-related deaths within 42 days of delivery. Most deaths not identified by the Center were identified through linkage to birth/fetal death certificates. Six deaths were identified solely from hospitalization records, so it is unlikely the number of pregnancy-related deaths will increase substantially when the 1997–1998 hospitalization files are completed.

To enhance surveillance of pregnancy-associated and pregnancy-related deaths in the future, the office of Maternal and Child Health plans to coordinate clinical review of linked records every two years. Findings will be footnoted in vital statistics reports with links to MCH data reports also noted.

For more information, contact: Cathy Wasserman, Ph.D., Maternal and Child Health Assessment, Washington State Department of Health, 360-236-3542, or cathy.wasserman@doh.wa.gov.

Influenza Season Update

Persons at high risk for influenza are encouraged to receive influenza vaccine even at this time of year. As of January 11, eight counties in Washington had reported laboratory-confirmed cases, but no confirmed outbreaks had been identified. Influenza A, H3N2 accounted for almost all laboratory isolates. The first and only case of influenza A, H1N1 this flu season occurred in November. The types of influenza being seen were included in this year's vaccine. See WWW Access Tips to obtain weekly updates about influenza activity and a fact sheet about influenza.

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